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Serial Number: 10/024,674   Dkt: 884.590US1 (INTEL)
Filing Date: December 17, 2001
Title: MATERIALS CLASSIFIER, METHOD OF USING AND METHOD OF MAKING
Assignee: Intel Corporation

IN THE CLAIMS

Please amend the claims as follows:

1.   (Original) A method of classifying particles, comprising:

placing a fluid into a device, wherein the fluid contains at least two particle types, and wherein the device includes a first electrode, a second electrode, a third electrode, and a conduit disposed between the second electrode and the third electrode;

first biasing between the second electrode and the third electrode under conditions to focus a first particle type; and

nth biasing between the second electrode and the third electrode under conditions to focus an nth particle type.

2.   (Original) The method according to claim 1, wherein first biasing under conditions to focus a first particle type includes a first particle type that includes a first plurality of particle types.

3.   (Original) The method according to claim 1, wherein first biasing under conditions to focus a first particle type includes a first particle type that includes a first plurality of particle types, and following nth biasing, further including:

$n+1^{st}$ biasing between the second electrode and the third electrode under conditions to focus an $n+1^{st}$ particle type.

4.   (Original) The method according to claim 3, wherein $n+1^{st}$ biasing under conditions to focus a first particle type includes an $n+1^{st}$ particle type that includes an $n+1^{st}$ plurality of particle types.

5.   (Original) The method according to claim 1, further including:

establishing a convective force in the fluid, wherein the convective force directs the fluid into the conduit.

6.   (Original) The method according to claim 1, further including:

establishing a convective force in the fluid, wherein the convective force directs the fluid into the conduit, wherein the conditions to focus a particle type include an electrophoretic mobility for a given particle type that overcomes the convective force in the conduit, and wherein the particle type focuses at the second electrode.

7.   (Original) The method according to claim 1, wherein the first electrode includes a ground, wherein the second electrode includes a varactor, and wherein the third electrode includes a varactor.

8.   (Currently Amended) The method according to claim 1, wherein placing a fluid into a device includes placing a the fluid is pH-buffered fluid.

9.   (Original) The method according to claim 1, wherein the at least two particle types include a plurality of zwitterion molecules.

10.   (Original) The method according to claim 1, after first biasing, further including:
        second biasing between the second and third electrodes under conditions to separate a second particle type from the fluid.

11.   (Original) The method according to claim 1, after at least one of first biasing and Nth biasing, further including:

analyzing at least one of the first particle type and the Nth particle type by a method selected from quantitative analysis, qualitiative analysis, and a combination thereof.

12.   (Original) The method according to claim 1, wherein the device further includes:
        a fluid source reservoir into which is disposed the first electrode;
        a fluid receptacle reservoir into which is disposed the third electrode; and

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wherein the conduit communicates between the fluid source reservoir and the fluid receptacle reservoir.

13-25. (Cancelled)

26.   (New) The method according to claim 1, wherein the first electrode is set at ground, wherein the second electrode is set at positive, and wherein the third electrode is set at positive.

27.   (New) The method according to claim 1, wherein the first electrode is set at ground, wherein the second electrode is set at negative, and wherein the third electrode is set at negative.

28.   (New) The method according to claim 1, wherein the first electrode is set at positive, wherein the second electrode is set at positive, and wherein the third electrode is set at ground.

29.   (New) The method according to claim 1, wherein the first electrode is set at negative, wherein the second electrode is set at negative, and wherein the third electrode is set at ground.

30.   (New) A method of classifying particles, comprising:

placing a fluid into a device, wherein the fluid contains at least two particle types, and wherein the device includes a first electrode, a second electrode, a third electrode, and a conduit disposed between the second electrode and the third electrode, wherein the first electrode includes a ground, wherein the second electrode includes a varactor, and wherein the third electrode includes a varactor;

establishing a convective force in the fluid, wherein the convective force directs the fluid into the conduit;

first biasing between the second electrode and the third electrode under conditions to focus a first particle type; and

nth biasing between the second electrode and the third electrode under conditions to focus an nth particle type.

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31.   (New) The method of claim 30, wherein first biasing includes biasing at a potential in a range from about 0.1 Volts to about 300 Volts.

32.   (New) The method of claim 30,.wherein first biasing includes biasing at a potential in a range from about 0.1 Volts to about 300 Volts, following first biasing the process further including:

subsequent biasing under conditions to cause a particle type that is different from the first particle type to become mobile, wherein the convective force is unchanged; followed by

the nth biasing.

33.   (New) The method of claim 30, wherein first biasing includes biasing at a potential in a range from about 0.1 Volts to about 300 Volts, following first biasing the process further including:

second biasing between the second and third electrodes under conditions to separate a second particle type from the fluid;

subsequent biasing under conditions to cause a particle type that is different from the first particle type and the second particle to become mobile, wherein the convective force is unchanged; followed by

the nth biasing.

34.   (New) The method of claim 30, wherein the first electrode is set at one of ground, negative, and positive, wherein the second electrode is set at one of positive and negative, and wherein the third electrode is set at one of ground, negative, and positive.

35.   (New) A method of classifying particles, comprising:

placing a fluid into a device, wherein the fluid contains at least two particle types, the device including:

a conduit disposed in a dielectric structure;

a fluid source reservoir disposed at a first end of the conduit;

a fluid receptacle reservoir disposed at a second end of the conduit;

a first electrode disposed in the fluid source reservoir and spaced apart from the first end of the conduit, wherein the first electrode includes a ground;

a second electrode spaced apart from the first electrode and disposed either in the fluid source reservoir proximate the conduit, or in the conduit proximate the fluid source reservoir, wherein the second electrode includes a varactor;

a third electrode disposed in the fluid receptacle reservoir and space apart from the second end of the conduit, wherein the third electrode includes a varactor;

establishing a convective force in the fluid, wherein the convective force directs the fluid into the conduit;

first biasing between the second electrode and the third electrode under conditions to focus a first particle type, wherein first biasing includes biasing at a potential in a range from about 0.1 Volts to about 300 Volts; and

nth biasing between the second electrode and the third electrode under conditions to focus an nth particle type.

36.   (New) The method of claim 35, after first biasing, further including:

second biasing between the second and third electrodes under conditions to separate a second particle type from the fluid.

37.   (New) The method of claim 35, wherein establishing a convective force in the fluid includes establishing a convective force in a conduit with an about 740 μ^2 and an aspect ratio of about 0.5405, and wherein the fluid is a pH-buffered fluid with an aliquot of three or more particle types.

38.   (New) The method of claim 35, wherein the first electrode is set at one of ground, negative, and positive, wherein the second electrode is set at one of positive and negative, and wherein the third electrode is set at one of ground, negative, and positive.